



INTRO TO GEOGRAPHIC RESPONSE STRATEGIES (GRS)

01 May 2023

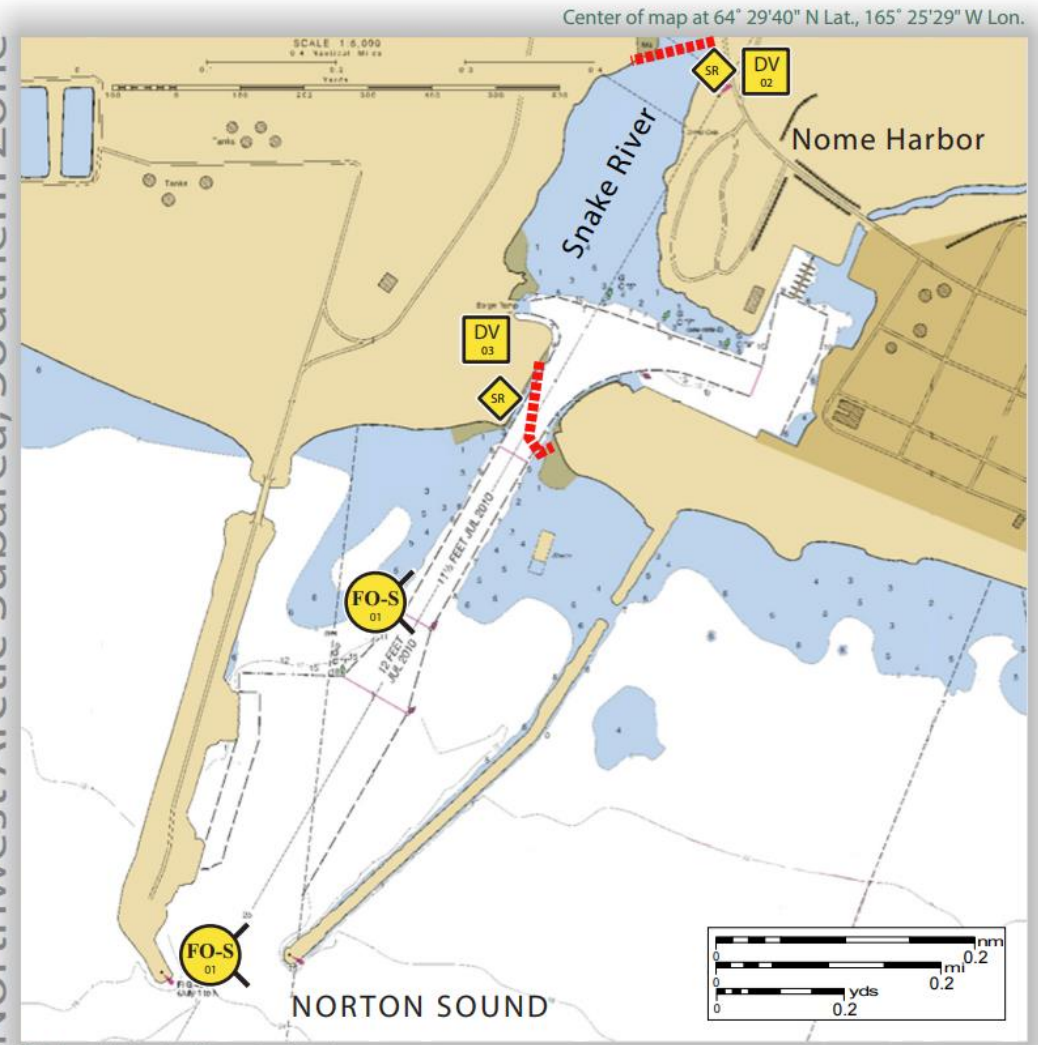
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WHAT IS A GRS?

- Quick response tool
- Address response to potential spill scenarios
- Identify priority protection sites
- Establish pre-approved tactics
- Flexible based on spill specifics

Geographic Response Strategies for Northwest Arctic Subarea, Southern Zone





NW-06 Agnes Island viewed from the northwest.

- Free-oil Containment and Recovery, Shallow Water
- Deflection Booming, Live
- Open-water Boom
- Eagle Nest

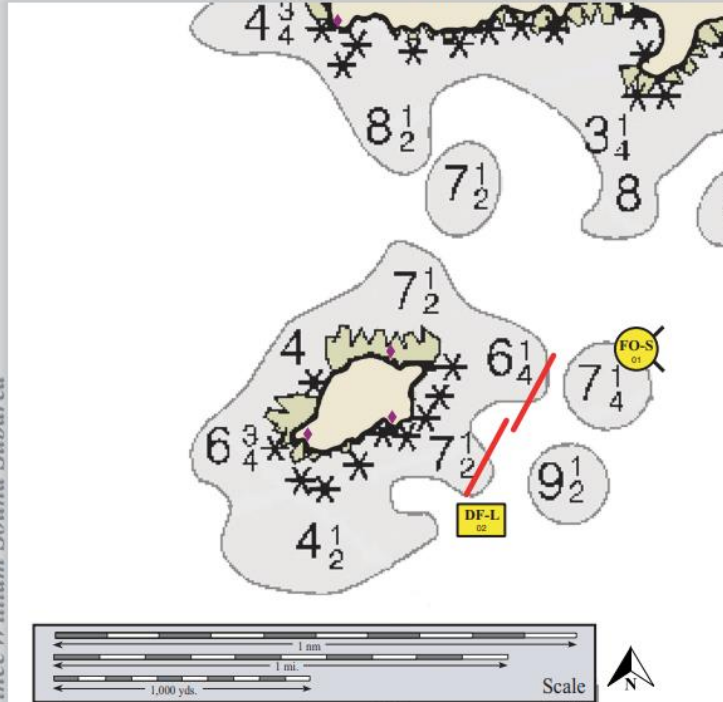


NW-06 Agnes Island viewed from the south.

Geographic Response Strategies for
Prince William Sound Subarea

Agnes Island, PWS-NW06

Center of map at 60° 36.9' N Lat., 147° 23.2' W Lon.



PDF GRS Example

Prince William Sound Zone Geographic Response Strategies

August 2003

August 2003

ID	Location and Description	Response Strategy	Implementation	Response Resources	Staging Area	Site Access	Resources Protected (months)	Special Considerations
PWS NW06-01	Agnes Island Nearshore waters in the general area of: Lat. 60° 36.7 N Lon. 147° 23.0 W	Free-oil Recovery-Shallow Water Maximize free-oil recovery in the offshore & nearshore environment to the east or west of Agnes Island, depending on oil trajectory.	Deploy free-oil recovery strike teams upwind and up current of Agnes Island. Use aerial surveillance to locate incoming slicks.	Deploy multiple free-oil recovery strike teams as required to maximize interception of oil before it impacts sensitive areas.	Vessel platform	Marine Chart 16705	Same as PWS-NW06-02	Vessel masters should have local knowledge. NOAA Charts pre-2002 are inaccurate.
PWS NW06-02	Agnes Island West / East Lat. 60° 36.7 N Lon. 147° 22.8 W	Deflection-Live Deflect oil away from Agnes Island. Locate depending on trajectory.	Transport equipment with vessels (class 2/3/4). Deploy 2 ea. 660 ft. boom arrays. Position boom upwind and up current of Agnes Island at an appropriate angle to deflect oil away from the island and sea bird foraging areas.	Deployment Equipment 1320 ft. open-water boom Vessels 1 ea. class 2 4 ea. class 3/4 Personnel/Shift 12 ea. vessel crew Tending Vessels 4 ea. class 3/4 Personnel/Shift 12 ea. vessel crew	Vessel platform	Marine Chart 16705	Marine mammals- harbor seals, sea lions, humpback, orca whales, sea otters Birds- seabird foraging nearshore, puffins, pigeon guillemots nesting around island perimeter Fish-herring spawning (April-May)	This is a high energy area subject to extreme wind and sea conditions. FOSC Historic Properties Specialist should INSPECT site prior to operations. Consider nearshore trapping if conditions permit. Surveyed: GRS WG 7/25/02

ArcGIS Hub Site

<https://grs-soa-dnr.hub.arcgis.com/>



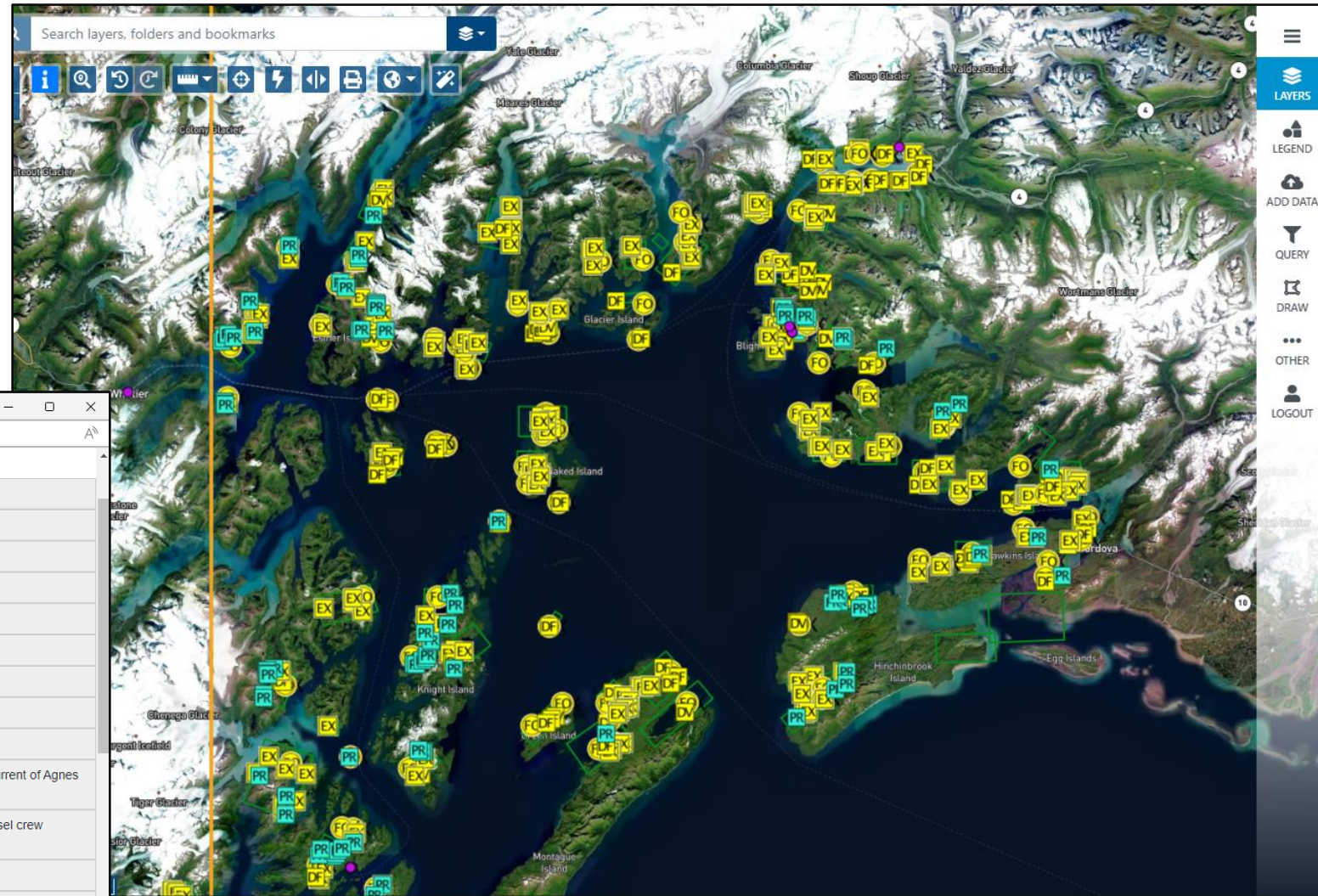
GIS System via Arctic ERMA

- Scalable
- Integrated facility data
- Equipment layers
- ESI data layer
- Trajectories

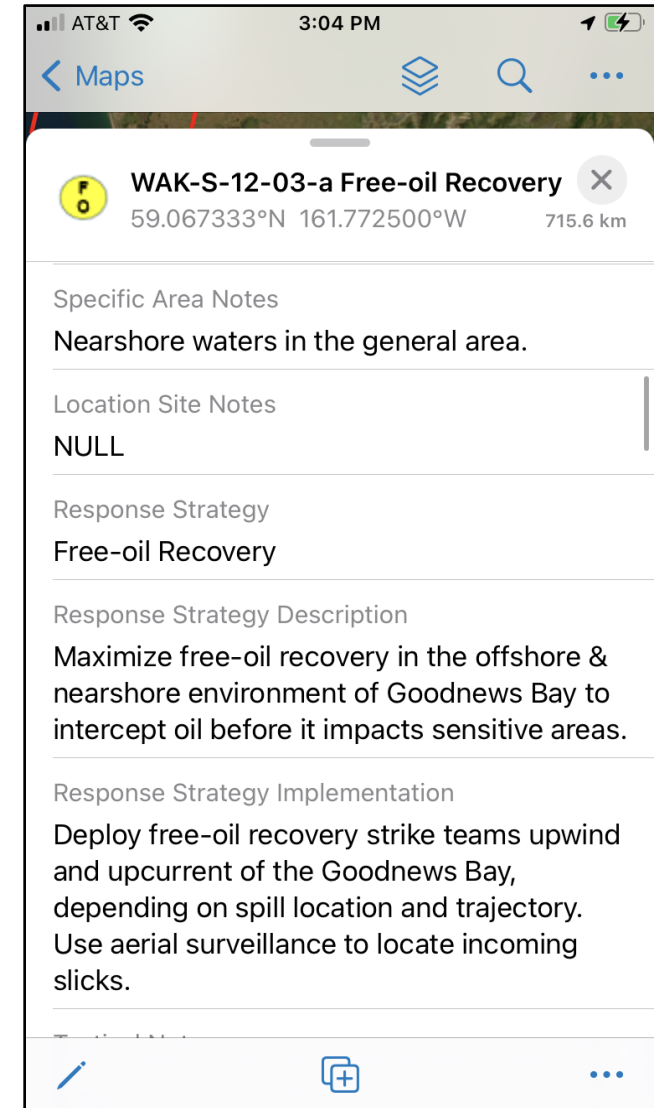
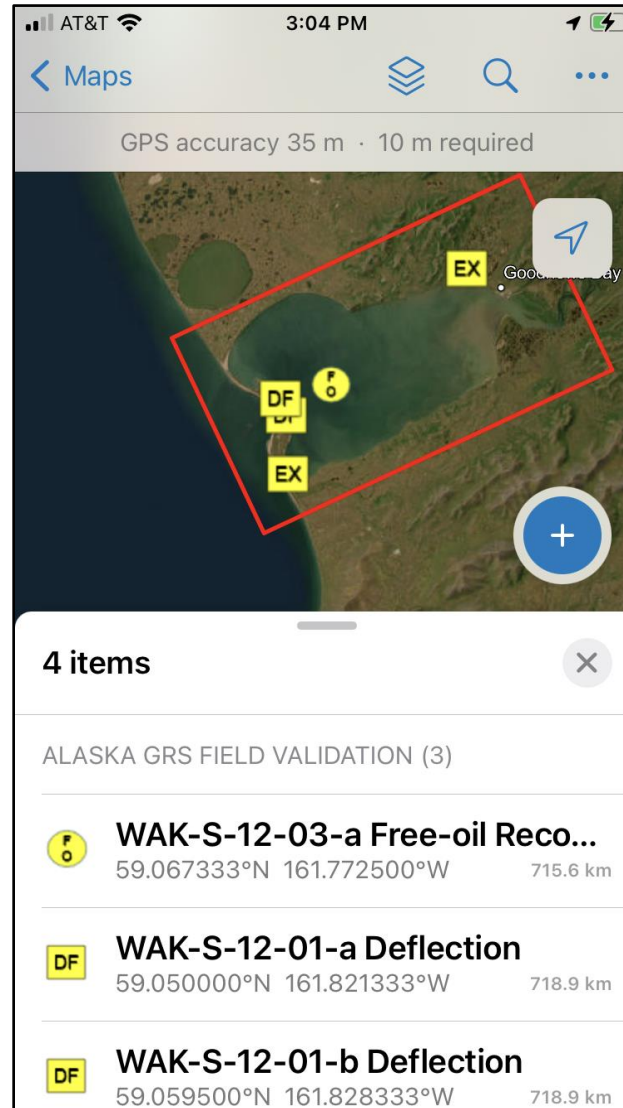
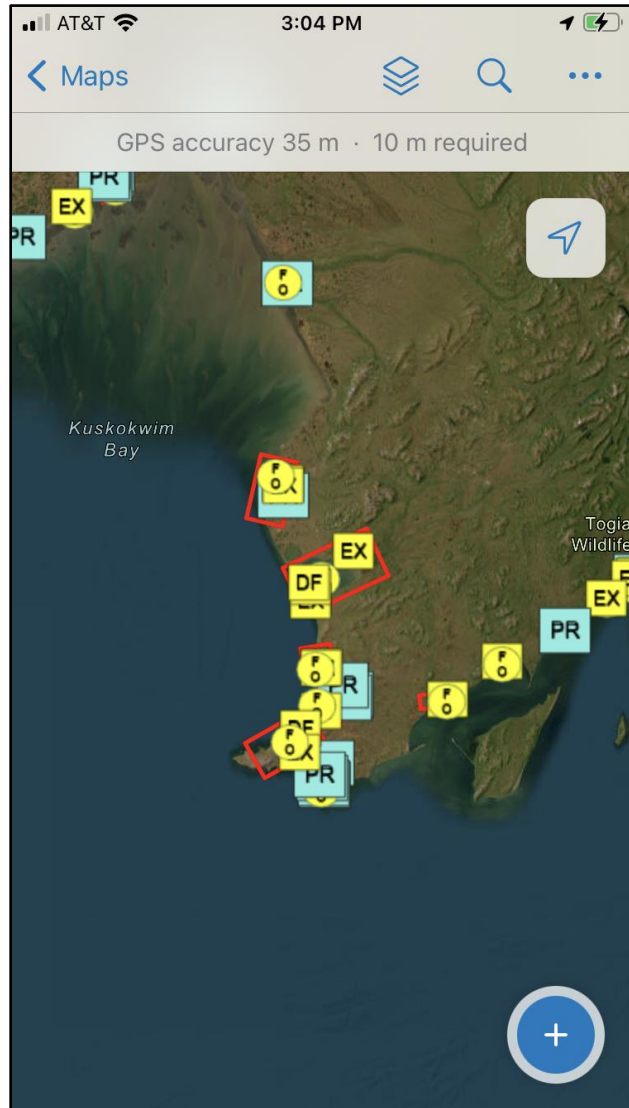
ERMA Identify - Profile 1 - Microsoft Edge
<https://erma.noaa.gov/identify?point=60.61169,-147.37945>

Draft AK GRS Updates - Live [Layer 45516-wms internal]

id	PNW06-02DFa
grs	PNW06
type	Deflection
lat_dm	60 - 36.7 N
lon_dm	147 - 22.8 W
lat_dd	60.61166667
lon_dd	-147.38
location_and_de...	Agnes Island West / East Lat. 60 - 36.7 N Lon. 147 - 22.8 W
response_strategy	Deflection-Live Deflect oil away from Agnes Island. Locate depending on trajectory.
implementation	Transport equipment with vessels (class 2/3/4). Deploy 2 ea. 660 ft. boom arrays. Position boom upwind and up current of Agnes Island at an appropriate angle to deflect oil away from the island and sea bird foraging areas.
response_resour...	Deployment Equipment 1320 ft. open-water boom Vessels 1 ea. class 2 4 ea. class 3/4 Personnel/Shift 12 ea. vessel crew Tending Vessels 4 ea. class 3/4 Personnel/Shift 12 ea. vessel crew
staging_area	Vessel platform
site_access	Marine Chart 16705



Field Map Mobile Application



GRS BACKGROUND INFORMATION

- Integral to comprehensive/useful ACP
- 700+ GRSs within Alaska
- GRS mgmt. includes:
 - Periodic review, validation and updating
 - GRS Validation Tiers 1-5
 - Analog vs. digital
- GRS mgmt. today:
 - Unsearchable, non-geolocated time-intensive PDFs
- GRS mgmt. by Gov't very difficult w/o support
 - Transition to GIS make mgmt. possible
 - Radically improves efficacy and use of GRSs

Validation Level	Name	Description	Requirements
I	Desktop	Evaluation of GRS data by subject matter experts (i.e., natural resource trustees) in an office or workshop setting. Can be supplemented with computer simulations.	All data should attain Level I validation.
II	Visual Confirmation	Deployment of subject matter experts to specified geographic area. Visual inspection of operational environment and verification of tactical strategies. No equipment deployment. Can be supplemented with computer simulations.	Targeted for moderate to high-risk areas where a degree of uncertainty exists.
III	Equipment Deployment	Deployment of identified equipment to verify its performance in the specified operating environment.	Targeted for inconclusive Level II validation strategies. Performed in high-risk areas where rapid and efficient response is critical.
IV	Full Scale Exercise (FSE)	Deployment of all appropriate response personnel and equipment under an area full scale exercise setting.	As dictated by the area exercise design/objectives.
V	Incident	Deployment of all appropriate response personnel and equipment for an actual incident.	Real world event.

Table 4-1: Geographic Response Strategies (GRS) Tiered Validation Levels

GRS INPUTS

- ESI Maps
- Facility specifics
- Vessel traffic studies
- Trajectory and fate
- Protected areas
- Cultural areas
- Available resources
- Community input

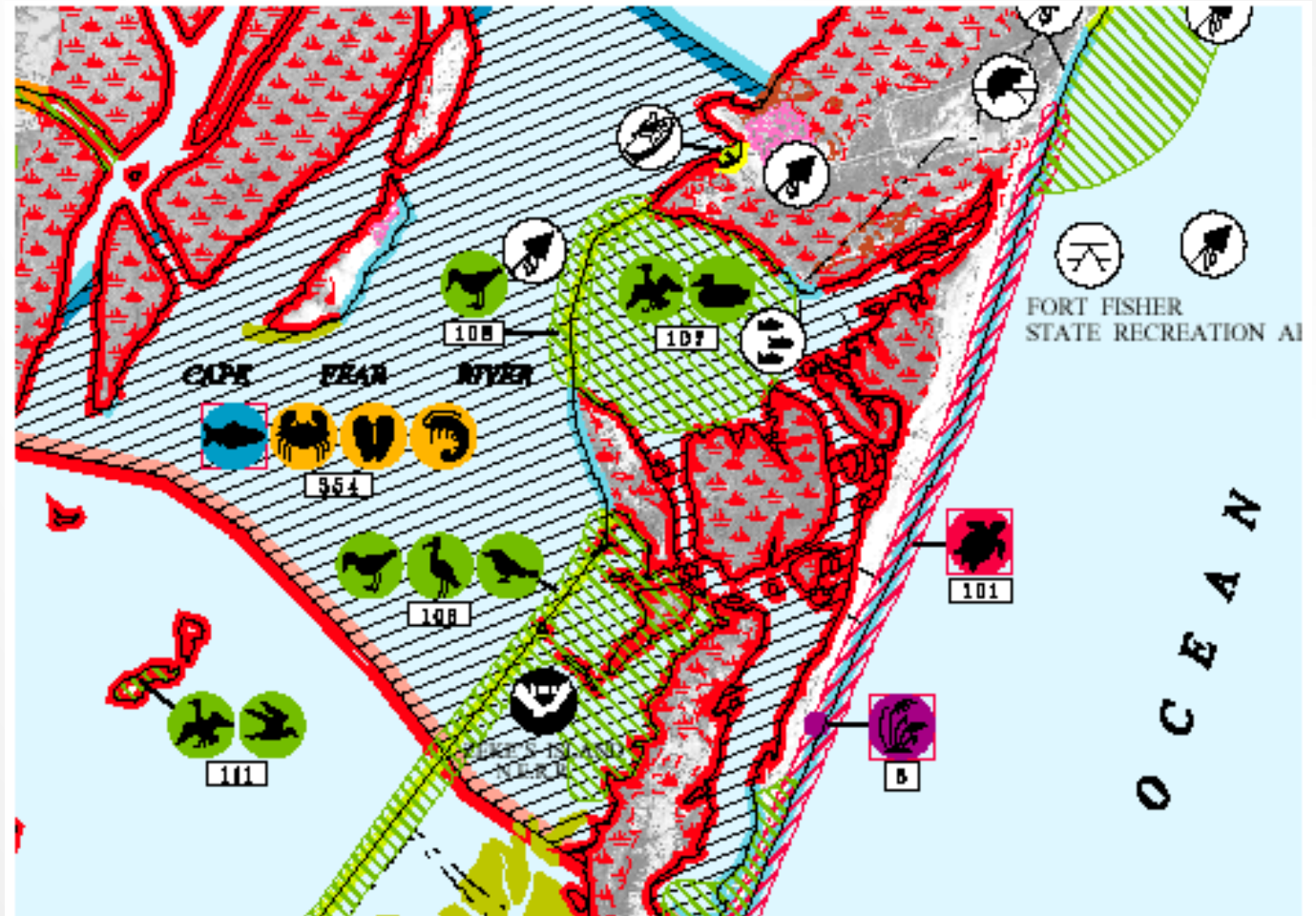
FACILITY SPECIFICS

- Type of products stored
- Total capacity
- Infrastructure condition
- Climate change impacts
- Accessibility
- Response resources



ESI MAPS

- Shoreline type
- Critical habitat
- Seasonality
- Human use features



VESSEL TRAFFIC STUDIES

Identifies high risk areas

Provides picture of fuel types and hazards

Informs preparedness activities

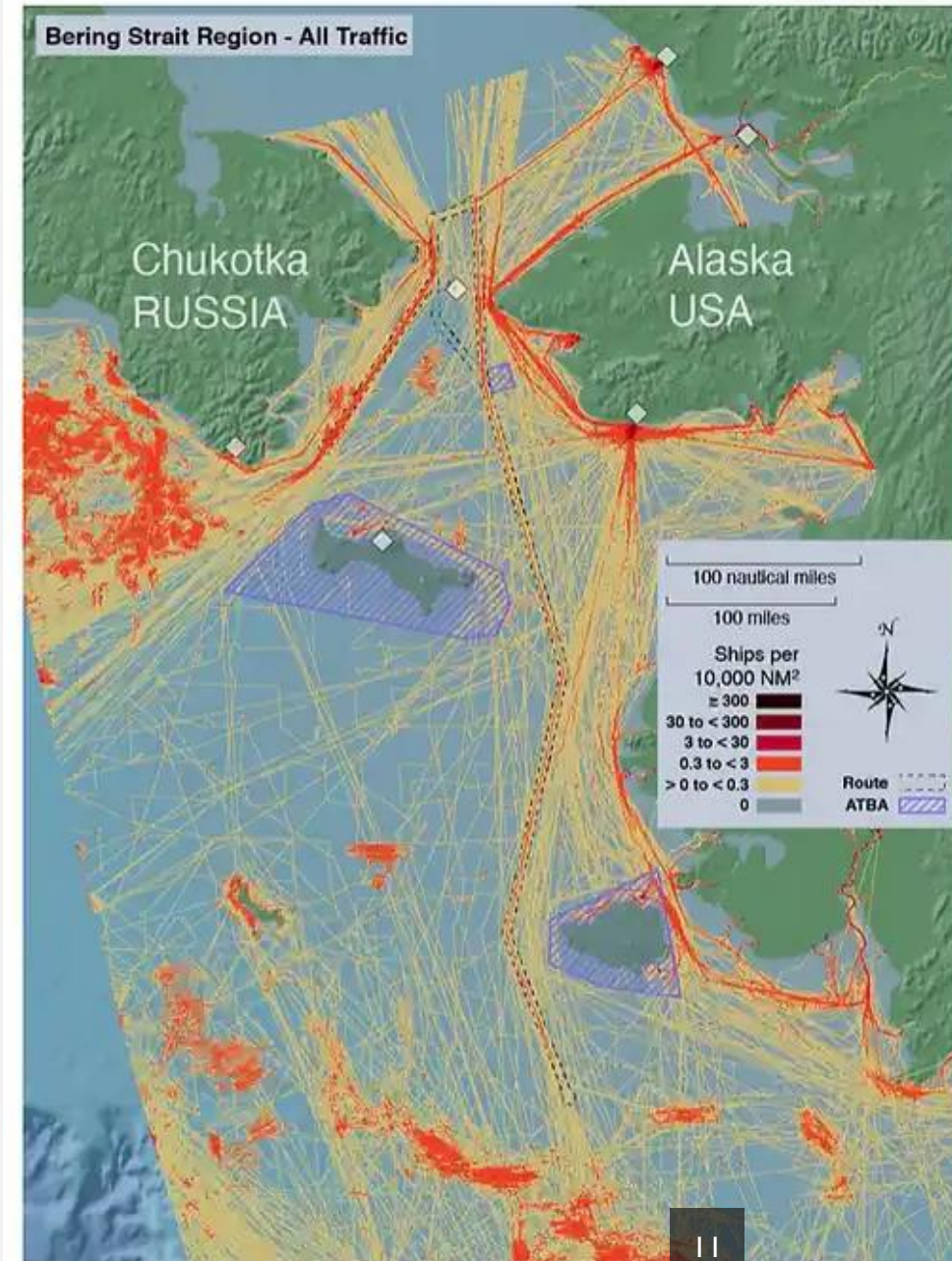
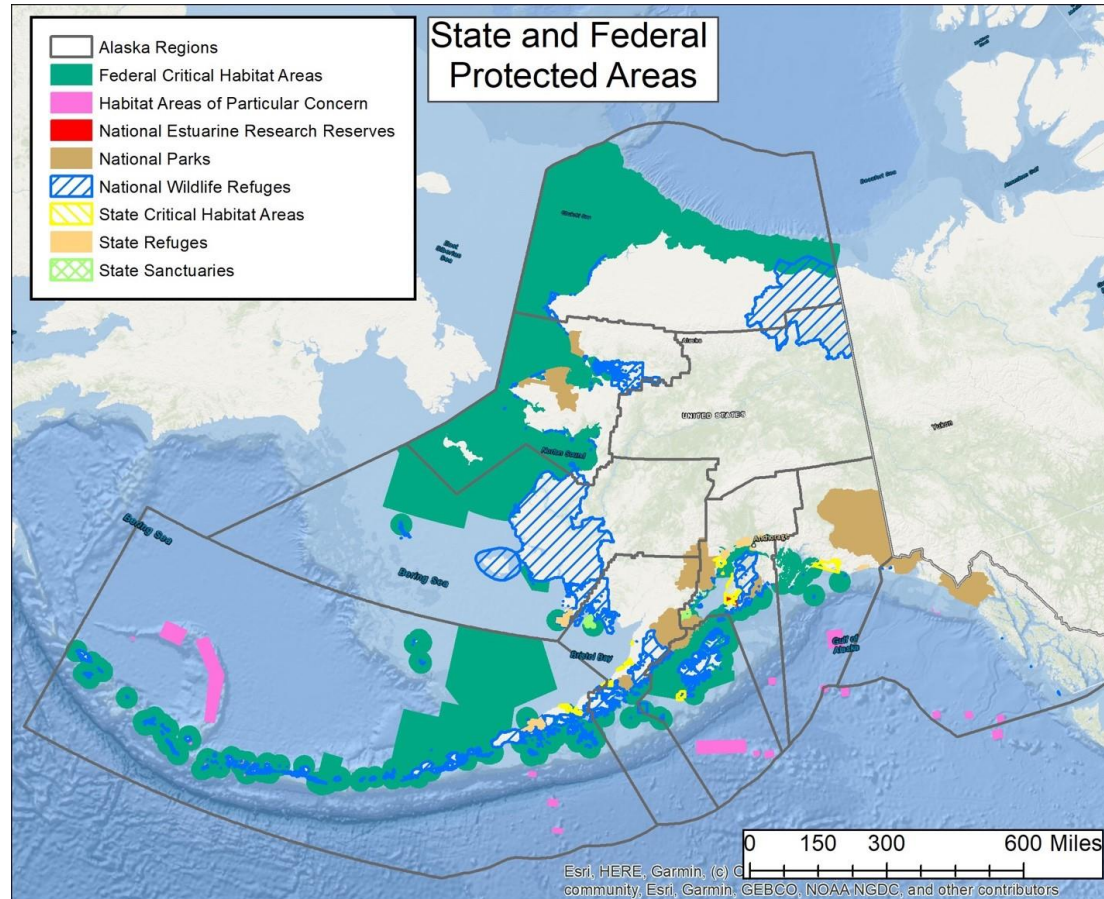


Figure 4-1 Map showing activity of all vessels included in the study, June to October 2019.

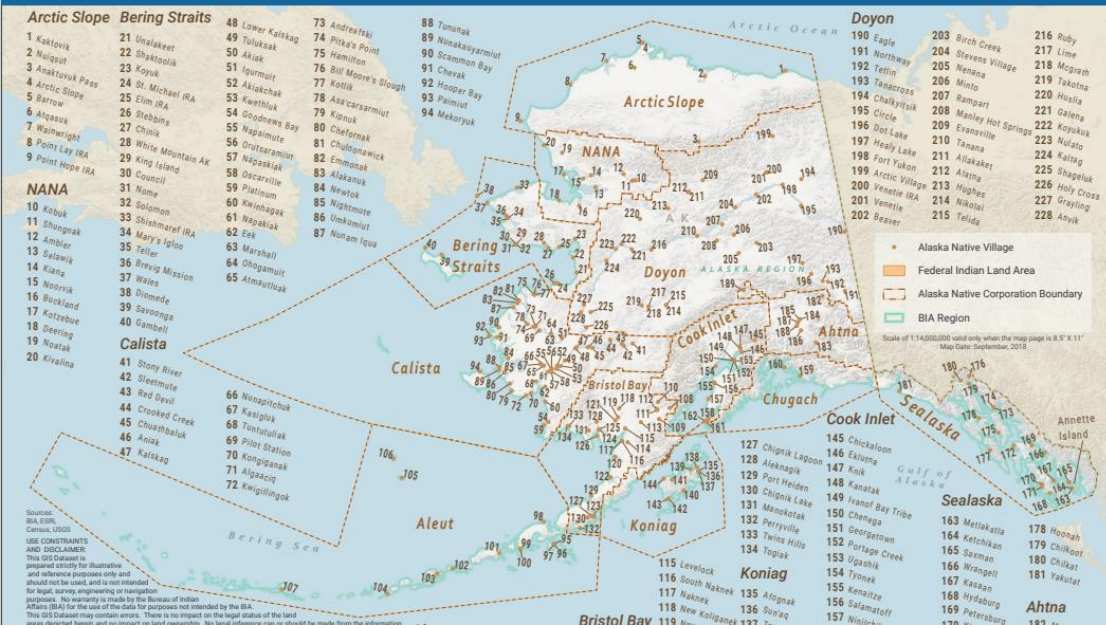
PROTECTED AREAS



- Important in geographic planning
- May require consultation with Natural Resource Trustees
- Highly sensitive areas



U.S. Domestic Sovereign Nations: Alaska Native Federal Land Areas



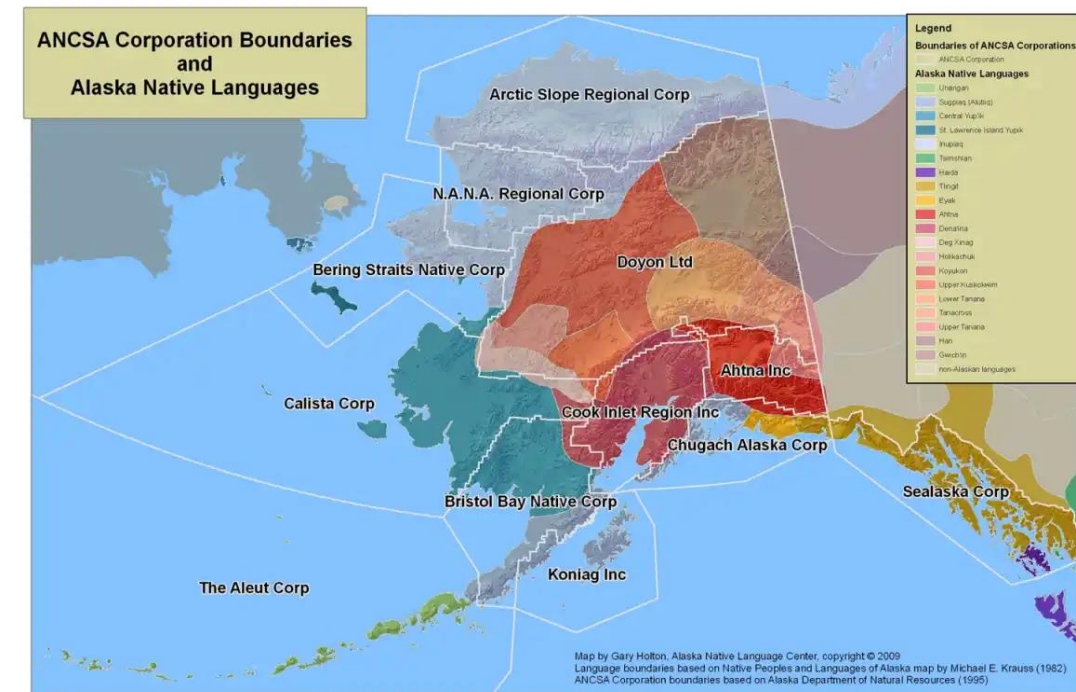
CULTURAL SITES

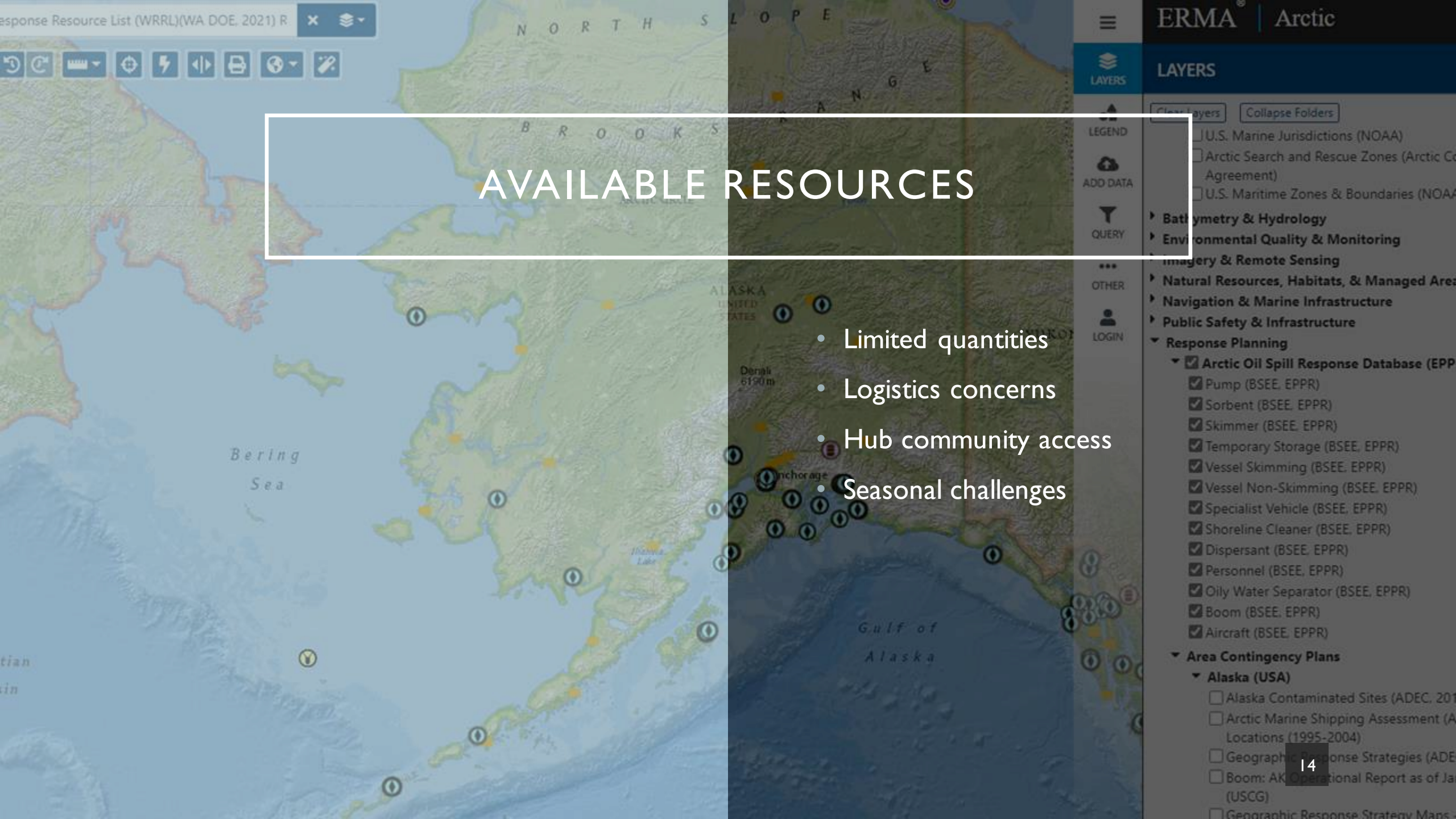
Requires consultation

Tribal and local involvement

State Historic Preservation Officer

Continued training and exposure





AVAILABLE RESOURCES

- Limited quantities
- Logistics concerns
- Hub community access
- Seasonal challenges

PUBLIC INPUT

- Area Committee Meetings
- Marine Safety Task Force
- Outreach and engagement